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File: USPT

Nov 13, 2001

US-PAT-NO: 6317685

DOCUMENT-IDENTIFIER: US 6317685 B1

TITLE: Method and system for providing alternate routes with a navigation system

DATE-ISSUED: November 13, 2001

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---------------------|------------|-------|----------|---------|
| Kozak; Frank J. | Naperville | IL | | |
| Kaplan; Lawrence M. | Northbrook | IL | | |

ASSIGNEE-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
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APPL-NO: 09/ 523794 [\[PALM\]](#)

DATE FILED: March 13, 2000

INT-CL: [07] [G01 C 21/00](#), [G01 S 5/00](#), [G01 S 13/00](#), [G06 F 7/00](#), [G06 F 17/00](#), [G06 F 19/00](#)

US-CL-ISSUED: 701/210; 701/200, 701/201, 701/202, 701/203, 701/204, 701/205, 701/206, 701/207, 701/208, 701/209, 340/905, 340/989, 340/990, 340/993, 340/995, 705/5, 705/6, 705/7, 705/8, 705/9, 235/914

US-CL-CURRENT: [701/210](#); [340/905](#), [340/989](#), [340/990](#), [340/993](#), [340/995.21](#), [701/200](#), [701/201](#), [701/202](#), [701/203](#), [701/204](#), [701/205](#), [701/206](#), [701/207](#), [701/208](#), [701/209](#), [705/5](#), [705/6](#), [705/7](#), [705/8](#), [705/9](#)

FIELD-OF-SEARCH: 701/210, 701/200-209, 340/905, 340/989, 340/990, 340/993, 340/995, 235/91H, 324/161, 324/160, 705/5, 705/6, 705/7, 705/8, 705/9

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

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| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|--|------------|---------------|---------|
| <input type="checkbox"/> 4153874 | May 1979 | Kaestner | 324/161 |
| <input type="checkbox"/> 5204817 | April 1993 | Yoshida | |
| <input type="checkbox"/> 5504683 | April 1996 | Gurmu et al. | |
| <input type="checkbox"/> 5635924 | June 1997 | Tran et al. | |
| <input type="checkbox"/> 5742922 | April 1998 | Kim | |
| <input type="checkbox"/> 5758313 | May 1998 | Shah et al. | |

| | | | |
|---|----------------|----------------|---------|
| <input type="checkbox"/> <u>5845227</u> | December 1998 | Peterson | 701/209 |
| <input type="checkbox"/> <u>5862509</u> | January 1999 | Desai et al. | 701/209 |
| <input type="checkbox"/> <u>6119095</u> | September 2000 | Morita | 705/5 |
| <input type="checkbox"/> <u>6144917</u> | November 2000 | Walters et al. | 701/204 |
| <input type="checkbox"/> <u>6192314</u> | February 2001 | Khavakh et al. | 701/209 |

FOREIGN PATENT DOCUMENTS

| FOREIGN-PAT-NO | PUBN-DATE | COUNTRY | US-CL |
|----------------|----------------|---------|-------|
| 11002536-A | September 1997 | JP | |

ART-UNIT: 361

PRIMARY-EXAMINER: Cuchlinski, Jr.; William A.

ASSISTANT-EXAMINER: Mancho; Ronnie

ATTY-AGENT-FIRM: Kozak; Frank J. Kaplan; Lawrence M.

ABSTRACT:

A feature for a navigation system that provides an evaluation of alternate routes. According to this feature, the navigation system compares the actual time of travel along a route to the estimated time of travel along the route. If the actual time of travel exceeds the estimated time of travel, alternate routes to the destination are calculated and provided to the user. This feature enables driver-experienced traffic conditions to be taken into account.

56 Claims, 8 Drawing figures

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L5: Entry 16 of 20

File: USPT

Nov 13, 2001

DOCUMENT-IDENTIFIER: US 6317685 B1

TITLE: Method and system for providing alternate routes with a navigation system

Assistant Examiner (1):Mancho; RonnieDetailed Description Text (6):

In order to provide navigation features to an end user, the navigation system 10 uses geographic data 50. The geographic data 50 includes information about one or more geographic regions or coverage areas. The geographic data 50 may be stored in the vehicle 12 or, alternatively, the geographic data 50 may be stored remotely and made available to the navigation system 10 in the vehicle 12 through a wireless communication system which may be part of the navigation system 10. In another alternative, a portion of the geographic data 50 may be stored in the vehicle 12 and a portion of the geographic data 50 may be stored in a remote location and made available to the navigation system 10 in the vehicle 12 over a wireless communication system from the remote location.

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L5: Entry 17 of 20

File: USPT

Sep 18, 2001

DOCUMENT-IDENTIFIER: US 6292745 B1

TITLE: Method and system for forming a database of geographic data for distribution to navigation system units

Assistant Examiner (1):Mancho; RonnieDetailed Description Text (41):

Referring to FIGS. 1 and 6, at least a portion of the network 350 includes a wireless portion 352. The wireless portion 352 of the data network 350 enables two-way communication between the navigation system 112 and the service provider 109 while the vehicle 113 is located anywhere in the region 100. The wireless portion 352 may be implemented by any suitable form of wireless communications, including cellular, PCS, satellite, FM, radio, or technologies that may be developed in the future. The wireless portion 352 may include one or more transmitters 356, such as a transponder tower, an antenna tower, an FM tower, satellites, or other suitable means. The transmitters 356 include an appropriate communication link 358 to the service provider 109. This link 358 may be land-based or may be wireless. The transmitters 356 include suitable technology that enables two-way communication between the service provider 109 and the navigation system unit 112 in the vehicle 113.

Detailed Description Text (42):

In FIG. 1, the navigation system units 112 in the other vehicles 113 in the region 100 that are serviced by the service provider 109 may also communicate with the service provider 109 over the data network 350. The other vehicles 113 in the region 100 that are serviced by the service provider 109 may also use the same means of wireless communication 352 to communicate over the data network 350 with the service provider 109. Alternatively, other vehicles 113 that are serviced by the service provider 109 may use other means of wireless communication to connect to the data network 350 and/or communicate with the service provider 109.

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